

Hospital Patient Safety Indicator Web Querying Tool: Facilitating Knowledge Transfer & Utilization

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RTI International is a trade name of Research Triangle Institute.

1. Tool Objectives

- **Translate & transfer AHRQ Patient Safety Portfolio knowledge**
- **Develop retrospective injury detection tool that drives quality improvement (QI)**
 - Create capability to query hospital discharge data for occurrences of:
 - ◆ AHRQ's Patient Safety Indicators (PSIs)
 - ◆ Utah's adverse drug event (ADE) indicators
 - ◆ ICD-9 CM codes
 - Provide access to patient-level records within seconds in a HIPAA compliant environment



2. Enabling Data-Driven Hospital QI

- **Investigate** PSIs and ADEs in relation to length of stay and total charges
- **Compare** indicator trends for a hospital with:
 - hospitals in their peer group,
 - a hospital corporate system, and/or
 - aggregate state data
- **Examine** aggregate trends and outliers using statistical control charts (SPCs)
- **Stratify results** by:

age group	gender	admit type
service	payer	discharge status

3. Data Use/Access Precautions



- Secured, password protected system with virtual privacy networks (VPNS) built between the UDOH and each participating hospital
- Restricted access for users not authorized to view patient records
- Audit log to track each user and the patient records that were viewed

4. Developed with User Input

- Modified Delphi Process to Identify Indicators of Interest for QI
- All focus group members work on quality and safety in hospitals: **QI, risk management, pharmacy administration**
- 3 Focus Groups Conducted with UT Hospital Users
 - Identifying Gaps in Available Indicators (1/6/03)
 - User Needs Assessment (12/12/03)
 - User Testing (8/16/04)
- Focus group members had diverse levels of familiarity and experience using safety indicators
- Feedback from users guided tool development and refinement

5. Primary User Suggestions

General Query:

- Go beyond AHRQ Accepted PSIs; need ADEs
- Provide links to indicator and variable definitions/descriptions
- Provide alternative comparison groups
- Provide some interpretative discussion of overall trends
- Clearly label required fields and navigational buttons

Query Output:

- Clearly display all query elements in output labels
- Use statistical process control (SPC) charts to visually display data
- Display charts & tables together on one screen

6. Starting a Query

utah.gov State Online Services Agency List Business.utah.gov Search Utah.gov GO

health.utah.gov | NEWS | HEALTH DATA | SERVICES AtoZ | CONTACT UDOH | ABOUT UDOH | ORGANIZATION |
Utah Department of Health General Mailing Address: PO Box 1010, Salt Lake City, UT 84114-1010 General Phone Number: 801-538-6101

Query by Crude Rates and Patient Level Detail Query by Adjusted and Smoothed Rates IBIS-PH

PSI/ADE Query Tool

Step: 1. | 2. | 3. | 4. | 5. Overview Options Logout

Purpose:
This interactive query module is developed by the Utah Department of Health (UDOH) and Research Triangle Institute (RTI) to support hospital's patient safety efforts. This is a retrospective surveillance system that allows the user to get aggregate and patient level information on AHRQ's patient safety indicators (PSIs), adverse drug event classes (ADEs), and ICD-9 codes.

Getting Started:
Follow the steps to define your query. Steps 1-3 are mandatory. Steps 4 and 5 are optional. When you are done forming your query, click the "Submit" button to get the output. To get patient level information on the PSIs, ADEs, and ICD-9 codes simply go to the statistical control charts in the output section and either click on "View all Records" or click on a dot to get the patient records that comprise the specific time point.

Step 1: What time period do you want to select?

Step 2: What indicator(s) do you want to query?

Step 3: Select a variable to tabulate

Step 4: What comparisons do you want to see?

Step 5: Select sub-group(s)

Submit Reset

7. Query Example 1

utah.gov State Online Services Agency List Business.utah.gov Search Utah.gov GO

health.utah.gov | NEWS | HEALTH DATA | SERVICES AtoZ | CONTACT UDOH | ABOUT UDOH | ORGANIZATION |
Utah Department of Health General Mailing Address: PO Box 1010, Salt Lake City, UT 84114-1010 General Phone Number: 801-538-6101

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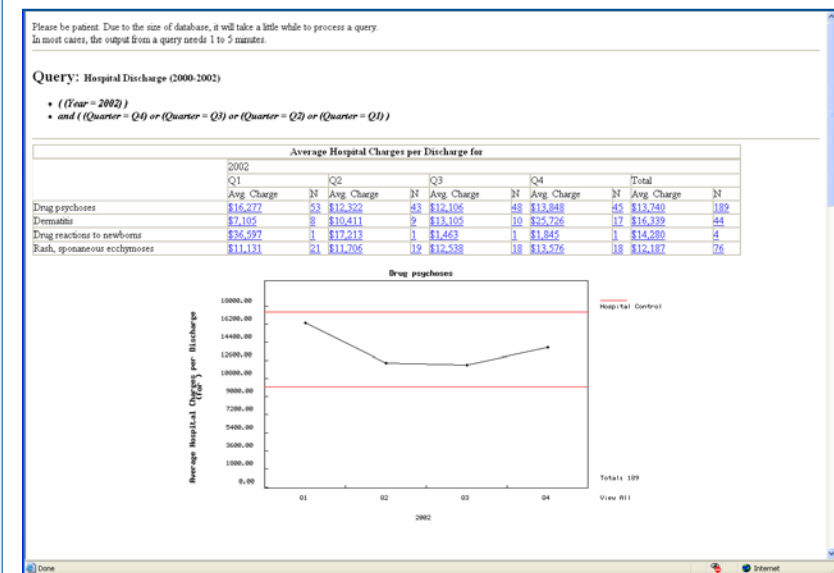
Step 1: What time period do you want to select?

Select time period
Year: ☐ All ☐ 2002 ☐ 2001 ☐ 2000
☒ Quarters
Select the Quarter(s):
☒ All ☒ 4Q ☒ 3Q ☒ 2Q ☒ 1Q
☐ Months

Step 2: What indicator(s) do you want to query?

What indicator(s) do you want to query?
☒ Patient Safety Indicators (PSI)
Select PSI indicator(s)
☐ All Patient Safety Indicators
☐ All Accepted Indicators
☐ Complications of anesthesia
☐ Death in low mortality DRGS
☐ Decubitus ulcer
☐ Failure to rescue
☐ Foreign body left in during procedure
☐ Iatrogenic pneumothorax
☐ Infection due to medical care
☐ Postoperative hip fracture
☒ Postoperative hemorrhage or hematoma
☒ Postoperative physiologic and metabolic derangements
☒ Postoperative respiratory failure
☐ Postoperative pulmonary embolism or deep vein thrombosis
☐ Postoperative sepsis
☐ Postoperative wound dehiscence in abdominal/pelvic surgical patients
☐ Accidental puncture or laceration

7. Query Example 1 (cont'd)



Please be patient. Due to the size of database, it will take a little while to process a query. In most cases, the output from a query needs 1 to 5 minutes.

Query: Hospital Discharge (2000-2002)

- ((Year = 2002))
- and ((Quarter = Q1))
- and ((Postoperative hemorrhage or hematoma = 1))

Hospital Patient Number	HPN		
Patient Name	SCHMOE, JOE		
Medical Record Number	9999		
Patient Gender	Female		
Patient's Age	44		
Date of Admission			
End Date of Care	10/01/02		
Length of Stay (Days)	2		
Discharge Status	Routine		
Patient Safety Indicators (PSI)	Adverse Drug Events (ADE)		
Accepted Indicators	Side Effects	Poisonings	Adverse Effects
Postoperative hemorrhage or hematoma	1		
ICD-9 Diagnosis Codes	ICD-9 Procedure Codes		
DX1	2181	PROC1	684
DX2	99811	PROC2	6561
DX3	2851	PROC3	7092
DX4	541	PROC4	4719
DX5	6160	PROC5	3998
DX6	6213	PROC6	
DX7	6170	PROC7	
DX8	6146	PROC8	
DX9	25000	PROC9	
EXCODE		PROC10	

Hospital Patient Number	HPN
Patient Name	SCHMOE, JOE
Medical Record Number	9999
Patient Gender	Female
Patient's Age	21

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Done

Internet

8. Tool Transferability

- Transferable to any health care organization that collects hospital administrative data
- Test version available at:
 - <http://health.utah.gov/ibisq/test/psi/1/ogon/logon.html>
 - username: rtitest
 - password: pass999
- Operates on UNIX and Windows environments

9. Vision for Next Steps

- Promote adoption/adaptation in other states
- Expand the indicators included in the tool
- Enhance tool functionality



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